

REMARKS

Claims 1, 5-26, and 31-34 are pending. No claims are amended in this response. Applicants thank Examiner Johnson for courteously granting an interview on December 8, 2004 with inventors Yong Wang and Jianli Hu and the undersigned attorney for applicants. As suggested by the Examiner, a section 132 Declaration is attached to this response.

Rejections under 35 U.S.C. § 102(e)

Claims 1, 5-7, 9-15, 19-20, 23, 26, and 33-34 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,413,449 to Wieland et al. This rejection is respectfully traversed.

The Wieland reference and claim 1 were discussed in the telephone interview. Claim 1 recites that “the catalyst possesses a volumetric productivity of at least 10,000 ml H₂ / ml catalyst·hr.” Applicant’s specification defines “volumetric productivity” at page 3, lines 16-24. The productivity value described in Wieland is provided in terms of liquid hourly space velocity and at conditions that do not conform with applicant’s definition of “volumetric productivity” at page 3, lines 16-24. As explained in the attached Declaration with attached document “Comparison of MeOH Steam Reforming Catalyst with U.S. Patent 6,413,449,” calculations show that Wieland’s catalyst does not inherently possess the claimed volumetric productivity. The “Comparison” document was faxed to the Examiner; during the telephone interview, the inventors explained the calculations and the Examiner had the opportunity to ask the inventors about the calculations. The Examiner agreed that the calculations showed that Wieland’s catalyst does not inherently possess the claimed volumetric productivity.

Although the Examiner acknowledged the showing of superior volumetric productivity, the Examiner expressed some reservation regarding the functional nature of the claimed volumetric productivity. However, according to MPEP § 2173.05(g), there is nothing wrong with defining part of an invention in functional terms. A similar functional limitation was upheld in a case involving a claim to a catalyst “characterizable” by a claimed level of “efficiency %” that is determined by testing at a given set of conditions. See *Union Carbide Chems. & Plastics Tech. v. Shell Oil Co.*, 308

F.3d 1167, 64 USPQ2d 1545 (Fed. Cir. 2002). It is clear that a catalyst claim can include a functional limitation. Accordingly, the rejection of claim 1 in view of Wieland should be withdrawn.

Claim 5 recites that the Pd is deposited after the step of adding a base to increase pH. As noted on page 8, lines 3-7, this order is important in obtaining a superior catalyst. Applicant's method is described at page 4, line 3 - page 5, line 2 and Example 3. It is clear to workers of ordinary skill from background understanding of the term "depositing," and from Applicants' descriptions, that "depositing Pd" must include a step of adding Pd. Wieland's method is the reverse of Applicants' method, with base added after the addition of Pd. Therefore, the rejection of claim 5 should be withdrawn since Wieland et al. do not deposit Pd after base has been added.

In the Response to Arguments, the Examiner states that redispersion and coating onto a carrier body. As the Examiner is aware, claims are interpreted from the viewpoint of a person skilled in the art. As pointed out in the attached 132 Declaration, a person skilled in the art would not understand powder redispersion and coating as including a step of "depositing Pd." Accordingly, the rejection of claim 5 should be withdrawn.

In the Response to Arguments, the Examiner also states that the steps are limited to order. This is false. Claim 5 clearly recites that "depositing Pd" occurs subsequent to at least a portion of the step of adding a base.

The method of claim 5 is further patentable over Wieland et al., because Wieland et al. do not disclose of adding a solution comprising dissolved zinc to a metal oxide support, nor adding a solid oxide support to a solution comprising dissolved zinc. Claim 5 requires "adding a solution comprising dissolved zinc to the solid metal oxide support, or adding a solid metal oxide support to a solution comprising dissolved zinc." In contrast, Wieland et al. combine a metal oxide with insoluble zinc oxide in an aqueous dispersion. It is true that Wieland et al. state that they subsequently dissolve a portion of the zinc in the acidic Pd solution; however, this does not constitute a step of "adding" a zinc solution. In other words, Wieland et al. state that they form a zinc solution *in situ*; however, they do not "add" a solution comprising dissolved zinc. Therefore, the rejection of claim 5 should be

withdrawn since Wieland et al. do not “add” a solution comprising dissolved zinc, nor a “add” a metal oxide support to a comprising dissolved zinc.

In the Response to Arguments, the Examiner has responded to this argument by referring to Example 1 of Wieland. This argument is specious. Example 1 of Wieland lacks any step of adding a base. Therefore, Example 1 cannot anticipate the method of claim 5.

The dependent claims are further allowable based on the limitations recited therein. For example, claim 9 recites that the zinc is completely dissolved in the solution. In contrast, Wieland et al. do not teach any step of adding zinc that is completely in solution. Note that at col. 7, lines 33-40, Wieland et al. state that the finely divided zinc oxide powder is partially dissolved by the addition of the acidic noble metal solution. Similarly, claim 12 recites a step of adding base after the zinc solution is added, while Wieland does not add any zinc solution. The Examiner has not responded to applicant’s argument regarding claim 12, and the Examiner’s response to claim 1 refers to Example 1 of Wieland, which lacks the addition of base.

Rejections under 35 U.S.C. § 103

Applicants traverse the section 103 rejections for the reasons described above.

Claims 16 and 22 are additionally patentable because there is not a proper motivation to combine the teachings of Wieland and Feinstein. In the Response to Arguments, the Examiner points out that Feinstein relates to a “reforming” catalyst. Although Feinstein uses the word “reforming,” Feinstein’s use of this word has a totally different meaning. Applicant’s catalyst and Wieland’s catalyst relate to methanol steam reforming. In contrast, Feinstein relates to a method for converting (reforming) ethyl aromatics to methyl aromatics (i.e., xylenes). Feinstein’s method requires scission of the ethyl C-C bond of the ethyl moiety that is bonded to an aromatic ring. This type of scission is totally unrelated to any step in the steam reforming of methanol. As stated by the inventors in the accompanying section 132 Declaration:

Reforming methanol to produce hydrogen and reforming ethyl aromatics to produce methyl aromatics are totally different processes. In reforming ethyl aromatics to produce methyl aromatics, the scission of the C-C bond in the ethyl group is critical

to forming methyl aromatics. In contrast, methanol does not have any C-C bonds. A worker of ordinary skill in the field of methanol steam reforming would know that the catalysts and mechanisms in converting ethyl aromatics to methyl aromatics are not relevant to the catalysts and mechanisms involved in methanol steam reforming. In other words, Feinstein is nonanalogous art.

Conclusion

If the Examiner has any questions or would like to speak to Applicants' representative, the Examiner is encouraged to call Applicants' attorney at the number provided below.

Respectfully submitted,

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